FlyBy Math™ Alignment
Academic Standards: Mathematics

Number and Operation

Content Standard 1.0 The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
6.1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems. g. develop meaning for ratios using real-world models and/or situations;	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
6.1.3 Solve problems, compute fluently, and make reasonable estimates. d. use strategies to estimate the results of computations involving whole numbers, fractions, and decimals in real-world situations;	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Predict outcomes and explain results of mathematical models and experiments.

Algebra

Content Standard 2.0 The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
6.2.1 Understand patterns, relations, and functions. b. use tables and graphs to generalize patterns in data; c. apply function rules to complete tables.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
6.2.2 Represent and analyze mathematical situations and structures using algebraic symbols. b. represent mathematical statements and real-world situations using symbols;	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, graphs, and equations to solve aircraft conflict problems.
6.2.3 Use mathematical models to represent and understand quantitative relationships. a. model simple real-world problems using graphs.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
6.2.4 Analyze change in various contexts. a. describe how changes in one quantity or variable result in changes in another.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates. --Interpret the slope of a line in the context of a distance-rate-time problem.

Geometry

Content Standard 3.0 The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
6.3.2 Specify locations and describe spatial relationships using coordinate geometry and other representational systems. a. plot a given set of points in Quadrant I of a coordinate system.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
6.3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems. c. use visualization and spatial reasoning to solve real-world problems	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Predict the relative motion of two airplanes on given paths.

Measurement

Content Standard 4.0 The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
6.4.2 Apply appropriate techniques, tools, and formulas to determine measurements. f. solve problems involving measurement using ratio and proportion.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Data Analysis & Probability

Content Standard 5.0 The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.

Learning Expectations and Accomplishments	***FlyBy Math*™ Activities**
6.5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer questions. a. formulate questions, design studies, and collect real-world data; c. examine various representations of data to evaluate how accurately the data is depicted; d. construct, interpret, and use single-bar and single-line graphs to answer questions and solve real-world problems.	--Conduct simulation and measurement for several aircraft conflict problems. --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

6.5.3 Develop and evaluate inferences and predictions that are based on data. a. make conjectures and predictions based on data;	--Predict outcomes and explain results of mathematical models and experiments. --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.